IBM PS/2 Wizard Adapter

Accelerated computing power for your 386-based PS/2

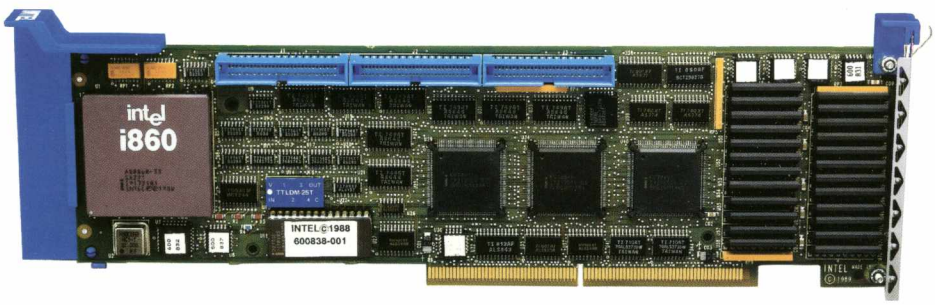
Now you can carry out complex financial modeling and engineering/scientific statistical analyses right at your PS/2.® Formerly, numeric-intensive tasks like these could only be handled on costly technical workstations or midrange systems. But the IBM PS/2 Wizard Adapter changes all that—by putting technical workstation-type power into your PS/2 Model 70 386 or 80 386.

Designed as a Micro Channel™ busmaster, the IBM PS/2 Wizard Adapter dramatically increases your PS/2's performance by adding the power of an i860™ microprocessor. As a busmaster, the adapter has direct access to everything attached to the Micro Channel. So it can free your PS/2's main processor for other tasks and carry out high-speed computational operations on its own.

Get super computing power and performance. The Wizard Adapter's 64-bit i860 processor defines a complete architecture that balances integer, floating-point and graphics performance. Building on RISC architecture, the advanced microprocessor provides high throughput via parallel pipelined processing units, wide data paths, and large on-chip caches.

There's more. The i860 microprocessor has a dual-instruction mode that can simultaneously execute one instruction from each of two classes: integer instructions (executed by the integer core unit), and floating-point and graphics instructions (executed by the floating-point and graphics units).

Also, the microprocessor is outfitted with a unique IBM-designed chipset to ensure efficient Micro Channel operation. The payoff is tremendous numeric-intensive processing capabilities—all made possible with an add-on adapter.



Run applications written for OS/2. Application device drivers are included with the PS/2 Wizard Adapter to ensure a smooth match with IBM OS/2.® The drivers work with both the 80386™ processor in your PS/2 and the adapter's i860 processor. Applications are initiated on the 80386 processor and computational tasks are "passed" to the Wizard Adapter. These tasks can range from small, numeric-intensive processes to large portions of complex, lengthy applications.

Take advantage of development tools from Intel. To help harness the power of your Wizard-equipped PS/2, IBM offers development toolkits created by Intel.® Using these programming tools, you'll have the facilities to port the numeric-intensive portions of an application from the main CPU to the accelerator. You identify numeric-intensive program modules, separate them from I/O-intensive modules, and recompile your application for execution by the Wizard Adapter.

Highlights

The IBM PS/2 Wizard Adapter provides a number of advanced features that enhance the power and performance of your PS/2.

Intel i860 microprocessor provides a complete architecture on a single chip, including integer, floating-point and graphics operations, memory-management support, and data instruction caches.

IBM

Integer core unit functions as the administrative center of the i860 microprocessor, fetching both integer and floating-point instructions. Containing the integer register file, it decodes and executes load, store, integer, bit and control-transfer operations. And its pipelined organization with extensive bypassing and scoreboarding ensures maximum performance for you.

Floating-point unit contains the floating-point register file, which can be accessed as 8 x 128-bit registers, 16 x 64-bit registers, or 32 x 32-bit registers. The unit provides a floating-point adder that carries out floating-point addition, subtraction, comparisons and conversions. The unit also supplies a multiplier that performs floating-point and integer multiplication as well as floating-point reciprocal operations.

Graphics unit uses special 64-bit logic to support 3-D graphics-drawing algorithms and can operate in parallel with the integer core unit. The graphics unit contains a special-purpose MERGE register and performs multiple additions on integers stored in the floating-point register file.

Caches include a page translation cache plus separate on-chip caches for data and instructions. The data cache allows you to support integer operations in the conventional manner. You can also use it much like a large block of vector registers to support vector operations.

IBM PS/2 Wizard Adapter at a glance

Microprocessor	33 MHz Intel i860 processor
Memory (RAM)	2Mb of static column DRAM, expandable to 8Mb total with 6Mb memory expansion option
Slots occupied	Two full expansion slots for power constriction needs (slots must be adjacent if 6Mb memory expansion option is installed)
Systems supported	PS/2 Models 70 386 and 80 386
Media	3.5-inch diskettes

Parallel architecture gives you flexibility to work with a wide variety of processing styles, including conventional programs and compilers, and compilers designed for vector machines. You can also utilize new instruction-scheduling technology for compilers, and take maximum advantage of the i860 microprocessor's dual-instruction mode, pipelining and caching.

2Mb of 85-nanosecond static column DRAM—expandable to 8Mb— gives you fast results plus room to grow. If your application requirements are greater than 2Mb, you can build to 8Mb total with the IBM PS/2 Wizard Adapter Memory Expansion Option.

Micro Channel busmaster design means the Wizard Adapter has direct access to all system features—including all I/O—and can work independently of the main PS/2 processor.

Development tools help you convert applications to run on the accelerator's i860 processor. These tools include an Assembler, Linker, Debugger, Simulator and C Compiler, plus math libraries and Vector Primitives.

What you get

Each PS/2 Wizard Adapter (part number 34F3062) comes with:

- Wizard Adapter Installation/Setup Guide (G571-0188)
- Wizard Adapter User's Guide (G571-0191)
- 3.5-inch diskette containing OS/2 device drivers

Options

Options available for use with the Wizard Adapter include:

- IBM PS/2 Wizard Adapter Memory Expansion Option (part number 34F3057)
- Intel i860 Microprocessor OS/2 Software Development Tools (part number 34F3070)

Warranty/Service

Like all IBM products, the PS/2 Wizard Adapter and Memory Expansion Option are built to meet high standards of quality and reliability.

The IBM PS/2 Wizard Adapter is backed by a one-year limited warranty. Terms of warranty for each component are available from IBM and IBM Authorized Industry Remarketers and Dealers.

®*IBM, PS/2 and OS/2 are registered trademarks of International Business Machines Corporation. Intel is a registered trademark of Intel Corporation.*
™*Micro Channel is a trademark of International Business Machines Corporation. i860, 80386 and 386 are trademarks of Intel Corporation.*

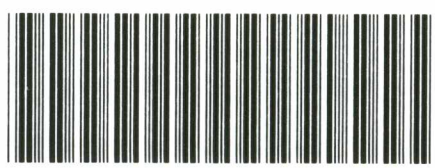
©IBM Corp. 1989

International Business Machines Corporation
US Marketing & Services
1133 Westchester Avenue
White Plains, NY 10604

Printed in the United States of America
11-89

All Rights Reserved

References in this publication to IBM products or services do not imply that IBM intends to make them available outside the United States.



G221-2815-00